

REMARKS**I. SUMMARY OF THE PRESENT OFFICE ACTION:**

Claims 1-13, 15-27, 29-35 and 37-58 were pending in this application at the time of issuance of the present office action. Claims 20-22, 26, 29, 30, 39, 41, 43 and 58 have been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Examiner has indicated that claims 46-56 are allowable.

Claims 9, 24-27, 29 and 37-41 have been objected to because of informalities. Claims 1-13, 15-19, 23-25, 27, 31-35, 37, 38, 40, 42, 44, 45 and 57 have been rejected. More specifically, claims 1-4, 6-12, 16-19, 23-25, 27 and 57 have been rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,900,834 ("Kubinec"). Claim 5 has been rejected over Kubinec in view of U.S. Patent No. 6,304,116 ("Yoon"). Claims 13, 15, 31-35, 37, 38, 40, 42, 44 and 45 have been rejected under 35 U.S.C. § 103(a) over Kubinec in view of U.S. Patent No. 6,795,515 ("Riedle et al.")

II. OVERVIEW OF AMENDMENTS:

The present application includes four independent claims (*i.e.*, 1, 31, 46 and 57). Claim 46 has been allowed. The other three independent claims (*i.e.*, 1, 31, 46 and 57) have been amended to distinguish over the cited prior art as discussed below. Claims 34-35 and 37-39 have been amended to be consistent with amended claim 31. Claims 9, 24-27, 29 and 37-41 have been amended in an effort to overcome objections. Claims 16, 17, 33 and 58 have been canceled.

Claims 1-13, 15, 18-27, 29-32, 34-35 and 37-57 are now pending. For the reasons explained below, Applicants submit that these claims are now in condition for allowance.

III. CLAIM OBJECTIONS:

Claims 9, 24-27, 29 and 37-41 have been objected to because of informalities. Office Action at ¶ 4. Claim 9 has been amended as suggested by the Examiner to recite "of each" instead of "of each of." Claim 24-27 and 29 have been amended to depend from claim 20 instead of claim 19 so that antecedent basis is now provided for "the second plurality of latching circuits." Claims 37-40 have been amended to depend from

claim 31 (which is still pending) instead of claim 36 (which was previously canceled). Finally, claim 41 has been amended to recite "clock signal" in place of "reference clock signal" so that antecedent basis is found in the base claim 31. Applicants thank the Examiner for careful review of the claims.

IV. CLAIM REJECTIONS UNDER 35 U.S.C. 103:

Claims 1-13, 15-19, 23-25, 27, 31-35, 37, 38, 40, 42, 44, 45 and 57 have been rejected under 35 U.S.C. § 103(a). More specifically, claims 1-4, 6-12, 16-19, 23-25, 27 and 57 have been rejected under over Kubinec. Claim 5 has been rejected over Kubinec in view of Yoon. Claims 13, 15, 31-35, 37, 38, 40, 42, 44 and 45 have been rejected over Kubinec in view of Riedle et al.

The present application includes four independent claims (*i.e.*, 1, 31, 46 and 57). Claim 46 has been allowed. The other three independent claims have been amended to distinguish over the cited references as discussed below.

A. AMENDED INDEPENDENT CLAIM 1

Claim 1 of the present application has been amended to recite as follows:

" a second set of circuitry having one storage element corresponding to each output of the first set of circuitry, and an input that receives a trigger signal that is timed to correspond to a delay which is approximately half of the total delay of the chain, and the second set of circuitry being operative to record in the corresponding storage elements one or more pulses that may be active at the time of occurrence of the trigger signal, wherein the second set of circuitry further includes a single one detector operative to select one from the recorded pulses in the storage elements at the time of occurrence of the trigger signal, and wherein a jitter measurement is made based on the selected pulses after a plurality of trigger signals has occurred.

Support for the above amendment is found in the specification at page 10, lines 2 through 15 and element 338 (the "single one detector") shown in Figure 3A. Claims 16 and 17 - which recited a "filtering" function and "single one detector for filtering the measurement of jitter" - have been canceled. Claim 1 has been amended to include the limitations of the previous claim 17, and the further limitation that the single one detector is "operative to select one from the recorded pulses in the storage elements at the time of

occurrence of the trigger signal.” Thus, amended claim 1 closely tracks the previous dependent claim 58, which the Examiner has indicated to be allowable. The previous claim 58 recited “a single one detector for ...selecting one instance of the recorded pulses in response to occurrence of the reset signal.”

Applicants respectfully submit that none of the cited references teaches “a single one detector operative to select one from the recorded pulses in the storage elements at the time of occurrence of the trigger signal,” as recited in independent claim 1. Addressing the previous claim 17, the Examiner drew attention to the counter 306 in Figure 3(a) of Kubinec, and pointed out that this counter “counts a single significant instance or single ‘one’ during each triggering master clock (col. 2, lines 9-13; col. 3, lines 59-61; col. 4, lines 15-20).” Office Action at p. 8. However, the counter described by Kubinec is not “operative to select one from the recorded pulses in the storage elements at the time of occurrence of the trigger signal” as recited in amended independent claim 1. This is because the counter described by Kubinec is not capable of resolving logic conditions where there is more than one pulse recorded in the storage elements.

While Kubinec discloses determining a mean position of multiple edges detected upon occurrence of multiple trigger signals, it does not disclose “a single one detector operative to select one from the recorded pulses in the storage elements at the time of occurrence of the trigger signal” as recited in amended claim 1. Thus, Kubinec does not teach the elements of amended claim 1, either alone or in combination with any of the other cited references. Therefore, Applicants submit that amended claim 1 is in condition for allowance. Claims 2-13, 15, 18-27 and 29-30 depend from patentable claim 1, thus rendering these claims patentable as well. Applicants also submit that amended claim 1 is sufficiently similar in scope to the allowed claim 58 such that further searching is not required.

B. AMENDED INDEPENDENT CLAIM 31

Claim 31 of the present application has been amended to recite as follows:

receiving a trigger signal and delaying the received trigger signal to occur at a time equal to approximately half the total delay of the chain;

detecting propagation of the significant instant of the clock signal through each of the delay elements in the chain and producing a pulse corresponding thereto;

if multiple pulses are produced coincident with the trigger signal, filtering the multiple pulses to provide one filtered pulse coincident with the trigger signal;

recording any the filtered pulse that is coincident with the trigger signal; and

producing a jitter measurement signal responsive to the recorded filtered pulses after the plurality of trigger signal occurrences.

Support for the above amendment is found in the specification at page 10, lines 2 through 15 and element 338 (the "single one detector") shown in Figure 3A. Amended claim 31 closely tracks the previous dependent claim 58, which the Examiner has indicated to be allowable. The previous claim 58 recited "a single one detector for ...selecting one instance of the recorded pulses in response to occurrence of the reset signal."

Applicants respectfully submit that none of the cited references teaches the step of "if multiple pulses are produced coincident with the trigger signal, filtering the multiple pulses to provide one filtered pulse coincident with the trigger signal," as recited in amended independent claim 31. The counter described by Kubinec does not "filter [] the multiple pulses to provide one filtered pulse coincident with the trigger signal," as recited in amended independent claim 31. Kubinec does not even contemplate the possibility where "multiple pulses are produced coincident with the trigger signal," as recited in amended independent claim 31. Of course, the counter described by Kubinec is not capable of choosing between multiple pulses produced coincident with a single trigger signal. Thus, Kubinec does not teach the elements of amended claim 31, either alone or in combination with any of the other cited references. Therefore, Applicants submit that amended claim 31 is in condition for allowance. Claims 32, 34-35 and 37-45 depend from patentable claim 31, thus rendering these claims patentable as well.

C. AMENDED INDEPENDENT CLAIM 57

As mentioned above, the Examiner indicated that claim 58 would be allowable if rewritten in independent form to include all of the limitations of the base claim and any

intervening claims. Accordingly, independent claim 57 has been amended to include all of the limitations of the previous dependent claim 58, which is now canceled without prejudice or surrender of subject matter. Accordingly, claim 57 now recites:

single one detector for receiving a reset signal and for filtering the measure of jitter by selecting one instance of the recorded pulses in response to occurrence of the reset signal; and

a result calculator for producing statistical information about occurrences in the chain of the significant instance of the input clock signal.

Support for the above amendment is found in the previous claim 58, and in the specification at page 10, and elements 338 and 350 shown in Figure 3A. Applicants respectfully submit that amended independent claim 57 is now in condition for allowance.


CONCLUSION

Thus, in light of the above, having responded to each and every ground of rejection, Applicants respectfully request reconsideration and allowance of the pending claims in the above-mentioned application and respectfully requests that a timely Notice of Allowance be issued in this case.

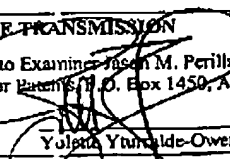
Respectfully submitted,

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